

## ABSTRACT

A method and an apparatus for radiolocation using time differences of arrival. The method includes receiving transmit timestamps from a set of wireless stations of a wireless network. Each station transmits at least once. The transmit timestamp uses a local timestamping clock to indicate when a station transmitted a packet. The method further includes receiving sets of timestamped captured samples from each station that receives one of the transmitted packets. The times of arrival of each packet at each station are determined from the received sets of timestamped captured samples, and, the relative positions of the stations are determined from the determined times of arrival and the received transmit timestamps. The transmitting by the stations is in a round robin manner one station after the other, and several round robins may be used to mutually calibrate local clocks. Also an apparatus for inclusion in a station of a wireless network. The apparatus includes a buffer subsystem and a timestamping subsystem, such that the station can capture and timestamp a set of samples of a received signal, and send the captured timestamped samples to a processing entity for time difference of arrival location determination.